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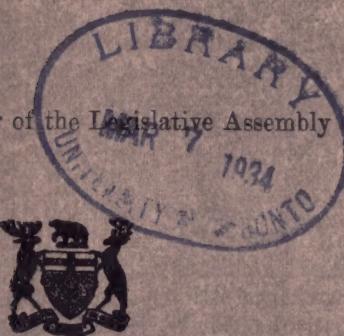
Vol. VI.

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Bulletin  
OF THE  
Ontario Hospitals for  
the Insane

*A Journal Devoted  
to the interests of  
Psychiatry in Ontario.*

Printed by Order of the Legislative Assembly



FOR THE DEPARTMENT OF THE PROVINCIAL SECRETARY.

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Printed by L. K. CAMERON, Printer to the King's Most Excellent  
Majesty.

## PROCEDURE TO SECURE ADMISSION OF PATIENTS TO ONTARIO HOSPITALS FOR THE INSANE.

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(1) Where the property of a patient is sufficient, or his friends are willing to pay the cost of the Medical Examination, the family Physician should apply directly to the Medical Superintendent of the Hospital for the Insane, in whose district the patient resides, for the necessary blank forms. These being secured, they should be properly and fully filled in, dated, signed in presence of two witnesses by the medical men in attendance. They are then returned to the Hospital, and if satisfactory, and there is accommodation, advice will be sent at once to have the patient transferred. See R.S.O., Cap. 317, sections 7, 8, 9.

(2) Where the patient has no property, and no friends willing to pay the cost, application should be made to the head of the Municipality where he lives, who, after satisfying himself that the patient is destitute, may order the examination to be made by two physicians, and a similar course to the above is then followed. The Council of the Municipality is liable for all costs incurred, including expenses of travel. See R.S.O., Cap. 317, section 11, subsections 1 and 2.

(3) Where the patient is suspected to be dangerously insane, information should be laid before a magistrate, who may issue a Warrant for the apprehension of the patient, and if satisfied that he is dangerously insane may commit the patient to the gaol, or some safe place of confinement, and notify the Medical Examiners. The Magistrate should then send to the Inspector of Prisons and Public Charities, Parliament Buildings, Toronto, all the information, evidence and certificates of insanity. The costs incurred by this method form a charge against the County, City or Town in which such patient resided. See R.S.O., Cap. 317, sections 12 to 20.

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The Bulletin  
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*A Journal Devoted to the Interests of  
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SEVEN YEARS' ADVANCE IN THE ONTARIO  
HOSPITALS FOR MENTAL DISEASES.

BY DR. EDWARD RYAN.

Medical Superintendent, Rockwood Hospital, Kingston, Ont.

In placing this paper before you I am doing so with the earnest desire of drawing the attention of the profession to a department of medicine which up to the present time has not received the consideration its importance demands. Seven years ago the retirement of a number of men connected with the Ontario Hospitals for Mental Diseases necessitated a number of appointments and afforded timely opportunity for a radical change in principle and methods.

It is not my intention to discuss the system then in vogue, nor the practice prevailing up to this period. For the purpose of contrast, however, it is necessary to state that there was an entire absence of therapeutic measures. Absolutely nothing was done in the way of treatment. There was no laboratory, nor was there any attempt at laboratory work. Original investigation of any kind was entirely absent. Pathology appears to have been entirely ignored. Records of patients were very indifferently kept. In many cases no record could be found beyond the mere entry in a book that the patient was admitted

on a certain date and sent to a certain ward. The disturbed patients, acute or chronic, were restrained by drugs, by locked doors and iron bars. There was practically no attempt to diagnose, to treat, to nurse, to cure. No wonder, then, the disease became chronic or that a useful life was lost.

To the Government charged with this grave responsibility the time seemed opportune for the breaking away from the old methods. The Government was most desirous that these hospitals should be brought in harmony with modern ideals and modern hospital methods. The superintendents were given a perfectly free hand, received every encouragement and support in their work. To insure the best results, a commission of two superintendents and a member of the Government was sent to visit Europe, and to study the systems in vogue in Germany and the other Continental centres of advanced educational and scientific work. Since that period no less than three commissions have visited the most advanced state hospitals in the neighboring republic. In this way those charged with the conduct of the Ontario hospitals were at the very outset given the knowledge, experience and encouragement so essential for the proper discharge of their duties so necessary to make the work a success.

#### CLASSIFICATION.

Our first effort was directed to the proper organization of the work in all its departments. The first step necessary was to prepare a method of classification, that each case might be studied along some definite scientific plan. The Kraepelin classification was adopted, with modification, by the conference of Medical Superintendents assembled for this purpose, and psychiatry was launched in the Province of Ontario. In addition to a close analysis of the mental status of each patient, the physical condition of each patient received a careful and methodical examination. Laboratories were established,

and the body fluids, stomach contents and excreta were given thorough study. Experienced pathologists were appointed to conduct this, one of the most important, interesting and valuable departments of the hospitals. Indeed, nowhere in the Province does pathological work meet with more careful attention or more exhaustive study than in the hospitals for psychiatry. The results of these various examinations and findings are carefully recorded. A modern filing system has been introduced in each hospital, so that the mental status, the physical examination and the pathological findings of each patient upon admission are full and complete. This complete investigation of cases, introducing as it does the family history and the life history of the patient in all its bearings, together with the clinical symptoms, led naturally to the demand for therapeutic measures. Could nothing be done to stay the progress of disease, or to relieve the existing conditions?

#### TRAINING SCHOOL FOR NURSES.

As in all diseases skilled nursing was considered a prerequisite, hence training schools for nurses were established in connection with each hospital. A very thorough curriculum is in force, and the course given will compare favorably with that of the average General Hospital. Indeed, our nurses have invariably made good in hospital positions, and in general nursing. In Rockwood school, which is probably the most advanced, I am not aware of a single failure. The staff is sufficiently large that an efficient service is maintained by night as well as by day, an important consideration. So satisfactory has the nursing system proven that nurses have been placed in charge of the male patients in both the acute and the chronic wards, with the most happy results. In four years' experience we have encountered no difficulty. It is our intention to extend this service till every ward in the hospital will be under control of trained nurses.

## TREATMENT.

As the various toxæmias, due often to depressing conditions and improper diet, are contributing features in many cases of insanity, treatment is directed to relieve these conditions. The treatment, so far as our knowledge of psychiatry, is therefore the rest treatment, with diet and nursing, mainly, indeed, the hygienic dietetic. I think it is now generally admitted this principle will apply to the treatment of disease in general. To meet this end the hospitals are fully equipped with continuous baths, the use of which produces the elimination of toxins, soothes the excited nervous conditions, regulates circulation and at the same time acts as a stimulant. The same may be said of the hot air cabinet treatment, combining the idea of the Turkish bath. All the accessories of these measures are fully employed, such as the hot pack, alcohol rubs and massage. A regular hospital chart, with bedside notes, is kept for each patient for filing purposes and subsequent study. Electrotherapy is also considered a valuable adjunct, and the hospitals are fully equipped for this line of medical treatment. A marked advance has been made in the dietetic conditions. The best food products are procured. Indeed, the dietary is left entirely in the hands of the medical staff. Expert dieticians, graduates of the most advanced dietetic schools, have been employed for organizing and training purposes. Separate diet kitchens have been established, that special diet may be at the disposal of the patients by day and by night. This advance has been a most valuable acquisition to the efficiency of the hospital. It has at the same time been of extreme service in the training of our nurses. At Rockwood we have never hesitated to secure special diet of any form, or at any cost, where such was deemed necessary in the interest of our patients.

## RESULTS.

The results of this advanced work are most satisfactory and encouraging. In 1900 there were 587 patients on the register of Rockwood Hospital; to-day, though the population of the district has increased, there are 562. In 1900 twenty-six patients were discharged from Rockwood Hospital; in 1911 there were seventy-two discharges, an increase of 276 per cent. In 1900 the admissions were seventy-one. In 1911 the admissions were 108. The discharge rate has been affected by the increased number of patients who, under conditions and by our advice, are now treated at home, and fortunately never reach our hospital. In every element of the hospital life conditions are materially altered. Restraint of every form has entirely disappeared. The jackets were burnt long ago. Drugs are now rarely used, and if at all for purely therapeutic purposes. The bars are going from the window and the locks from the door. The only restraint, in fact, is the kindly, soothing presence of a firm, tactful and intelligent nurse. The noise, excitement and turmoil have passed to the calm and quietness of the sick-room. This great change in hospital methods, with the satisfactory results as indicated, has brought a corresponding change in the attitude of the public in respect to the hospital. There is no longer the dread or hesitancy with respect to the hospital on the part either of the public or of the profession. I can best express this change in the words of a prominent physician, "The asylum was the last place to send a patient, but Rockwood Hospital is the first place and the only." In this way we are getting a better class of patients and more satisfactory patients are seeking treatment in the early and curable stages of disease. We are breaking away from the old methods of admission, and opening our doors to the sick seeking relief. With us certificates are no longer exacted. Voluntary patients are received, treated and discharged. The profession are advised to

send their acute patients at once. Commitment papers, when necessary, may follow. We have established the principle of the "open door."

#### EDUCATIONAL LIFE OF HOSPITALS.

One side of the work, which stands out quite unique on this continent, is the intimate association of the hospital with University work, and with the education of the medical students in psychiatry. At Rockwood Hospital this is a marked feature. During the college term one day a week is set apart solely for clinical work. Besides this general day, special cases of interest are immediately brought before the students in special clinics. Post-mortem and pathological work receive careful attention, and the students are thus taught the cause, symptoms, course, termination and pathological results. The whole course of the disease is thus revealed to the student. Before a body of medical men I need not dwell on the importance of such an educational awakening, or the effect it must have on the future. This clinic, need I add, is greatly appreciated by the students, and has a most stimulating effect on the nurses and on the hospital physicians. In this way, also, we have succeeded in enlisting the sympathy and co-operation of the profession, in what at present is one of the most important departments of medicine. The knowledge thus acquired enables the physician to recognize the early symptoms of disease and to apply intelligent scientific and timely treatment. From his personal observation, the physician educated under these conditions is fully cognizant of the beneficial results of hospital treatment, and if the case demands, he early advises hospital treatment. It is now quite obvious that in this district, at all events, the professional and the public mind is undergoing an entire change respecting the hospital. We are led by results to carry on this educational work far beyond our hospital doors. Preventive medicine is now and will be the goal

at which all interested should aim. There is no reason why disease of the mind should not be prevented as well as disease of the body, why psychical disaster should not be averted as well as physical. With a widespread knowledge as to the cause of psychical disturbances, and with an ordinary medical training as to early symptoms we feel certain that numberless cases can be averted, and also that early recognition will result in early cure. Our experience has taught us how false the view that insanity cannot be both prevented and cured. I make bold to say our results are quite as satisfactory as those met with in any other form of disease. So convinced are we as to the soundness of this position, we are organizing an educational campaign throughout the Rockwood district. Already we have had the pleasure of appearing before several of the medical bodies, and we shall, by kind permission, cover the whole territory in an earnest endeavor to enlist the sympathy and intelligent co-operation of the profession and the public, in the prevention and care of insanity. This will be the public or extra-mural course of Rockwood Hospital, in combating the inroads of this dread disease. This is an age of preventive medicine, and quite properly so. Then let prevention be applied to psychiatry as well as to plague. The science of eugenics should be devoted to the well-being of the human race, and to the protection of the race from all ills, whether those be of the mind or of the body. We are devoting much time and energy and literature, good and bad, to the question of heredity, to the marriage of human misfits, and to the degeneration in store for us in the days to come. Let us rather apply our efforts to the plain demands of our own day, and posterity will be most thankful.

#### ECONOMIC REORGANIZATION.

I must refer to another important advance, namely the economic reorganization and development of the past seven years. The system of accounting has been per-

fected, supplies are bought by tender. Work, wherever possible, is done under contract system, and the expenditure safeguarded in a manner that will compare favorably with the best managed business institutions of the land. The result of this well-regulated economic administration is, of course, to leave a larger fund available for necessary and timely development. After a large expenditure, covering many necessary advances, we at Rockwood can safely affirm that not one dollar has gone astray or has been misspent.

#### ELIMINATION OF POLITICS.

The past seven years have gradually witnessed the elimination of political control and interference. The last three appointments to the position of Medical Superintendent were promotions from the staff. The physicians thus advanced were first appointed by the late government. In the selection and promotion of the nursing staff and the staff of attendants the political side is entirely eliminated. Thus in so far as the medical direction is concerned, and this is by far the most important, merit entirely governs. No other element is for a moment considered. At Rockwood Hospital, in seven years, no appointment of any character has been made without the consent of the Medical Superintendent. No board of Governors of any hospital could give to its staff a freer hand. Thus we look back upon seven useful if arduous years, and seven years of marked scientific, educational, economic and administrative advance. I think I am safe in saying in no corresponding period were such marked advances made in the life of the general hospital or in any other department of medical science.

#### LOOKING FORWARD.

And looking forward we see in store for us a field of useful and beneficent labour. Especially will this be directed to the clinical work, to the study of the causation

and the clinical life of individual cases, and to the careful classification of the knowledge thus acquired. We see opening before us a wide field of research and of experimental work, a field almost untouched by the cultivating hand of the original labourer in the wide field of medicine. We see before us a vast region in the new world of eugenics, where the knowledge of the hospital can be brought to bear on the life of the home, where the experienced hand can guide the mental barque through dangerous waters, where mental stress and mental affection will be viewed as something to be studied, directed, relieved, and not to be dreaded or shunned. The State can contribute of its coffers to no cause more prolific of good results than that which returns so many to mental enjoyment, and to economic production. There is in the whole field of science nothing more entrancingly beautiful than the study of the psychoses and the physical inter-relations depending thereon. Nor can the humanitarian confer any benefit to his race more lasting or more prized than to succour the home from that which brings to it the greatest of all sorrows.

I must not close this short reference without paying my tribute to the man who for us in Ontario made this work possible. The Hon. W. J. Hanna led the way in this great departure, and by his wisdom, his courage and his successful labours, in this and kindred fields, his name will be forever cherished "in the grateful hearts of a grateful country."

## A REMARKABLE RECOVERY.

By J. C. MITCHELL, M.D.

Medical Superintendent Hospital for the Insane, Brockville.

This case is of peculiar interest on account of the remarkable recovery made from what is usually recognized as an incurable mental condition. The patient was under treatment in two different hospitals for a period of over four years, and was insane nearly seven years.

J. S. was born in London, England, in 1865, and came to Canada when an infant. He belonged to a good family, no history of insanity, and received a good education. He was of a reticent, quiet nature, and was a great reader. He went into business life when quite young, was successful, and at the time of his admission was in receipt of a large salary. He was married when quite a young man and was very devoted to his wife and children, very free and frank in his conversation with them, but always remained rather reserved and exclusive with strangers. In his business relations he was frank and was an excellent salesman. He did not try to make many friends, but had a few who were much attached to him. He always lived a very moral life and was never addicted to the use of alcohol.

During the year of 1904 his wife noticed that he complained at times that he was not getting fair play by the firm with whom he was employed and that people were conspiring against him. His business associates noticed that he was more reticent than usual and somewhat peculiar in his manner, and that he appeared to act as if he were suspicious of them. He also told some intimate friends that he was not being treated squarely and that people were conspiring against him. During the latter part of 1904 and beginning of 1905 he began to have many grandiose ideas.

In the spring of 1905 he imagined that the Masonic

Fraternity had left him an immense amount of money (\$10,000,000), and he drew up a document in a business-like manner thanking them for their bequest and telling them that he accepted it with the understanding that he give it back in some way that would be beneficial to the world. In this document he left this \$10,000,000 to one hundred and ninety-three specified benevolent and religious organizations, as well as leaving private bequests to many of his friends. Strange to say, however, he did not leave anything to his own family or to his near relatives. During all this time, however, he was able to attend to business and gave fairly good satisfaction to his employers; in fact, retaining his position until a short time before he was brought here for treatment.

He came in quite willingly and went into the ward for treatment, without making any trouble. In a few days he began to talk quite freely about persecution. He had now conceived the idea that the Masons were all conspiring against him, and also that Sir Wilfrid Laurier had something to do with it. On examination he was found to be in good physical condition, and could talk clearly and distinctly on all subjects. After a few days he began to resent his incarceration and to associate the people in the institution with his persecutory ideas. When in conversation he claimed to be possessed of a large amount of wealth, which he was going to use for benevolent purposes. He was well oriented and appeared to have a fairly good grasp of different subjects brought up for conversation. He had a good memory for past events, but could not be induced to give a clear account of his life, as he was suspicious of those conversing with him. His judgment was very fair, apart from his delusions of persecution and his grandiose ideas.

Soon, however, he became a troublesome patient and difficult to manage, imagining that everyone around him was concerned in plots against him. At times he cursed, swore, yelled and shouted, and threatened the other

patients, and the attendants without the slightest cause. One day he made a sudden attack on one of the medical officers, thinking that he was deep in the conspiracy against him.

Shortly after he was admitted he wrote a private letter to the Masons of Brockville, asking them for assistance. He stated that his enemies were not yet satisfied with their "pound of flesh." He thought that they were very much afraid of him. He claimed that his enemies were hunting him for his money but that he had succeeded in beating them out on that point. He said they were also hunting him down for his ability—that they knew he was one of the cleverest men, if not the cleverest, in Canada. He said that his opponents had pursued him into the room or ward that he was then in and had literally destroyed him, that their constant cry was "Crucify him," "Crucify him." That they were not satisfied with merely destroying him, but they also wished to destroy his family. In this letter he also gave quite an account of a conspiracy that had been entered into by different business houses, to prevent him getting the salary he was deserving of. He stated that he had been offered a very large salary from one of the business houses, but that his foes had prevented him from accepting it. He appealed to the Masons to let him go home to look after his family before his enemies succeeded in destroying them completely. He thought that his ability as a writer had simply been his destruction, for his writings had been so clever that they had to destroy him in order to prevent him doing the work he could do with his pen. In this letter he also claimed that the politicians were engaged in the plot against him. The following letter was written in July, 1905, and in this he blames the Masons for being in the conspiracy against him.

Thursday, July 13.

To the Masons of Brockville:

My enemies say, why don't I fight to get out, while they know that I could not get a dozen yards away; they watch every move I make. They drag my family down and take good care to keep me well tied up while they do it the only one who can defend them. They call it a fight, it is got down to rowdyism pure and simple making war on a family—the way they have—who have never done them any harm. If you paid a little more attention to your own affairs and less to what I eat and what I do it would be better for you and your kind; you are ruining yourselves in this disgraceful fight, everybody knows you are keeping me here on purpose to ruin my family and you are doing it in a most malicious and cruel way, day after day you keep on dragging them down, shame on you if there is any shame in you. You seem to simply delight in this cruel war, for that is what it is and has been on your part, for months past—nobody but a lot of d—d puicks would act the way you are doing, go and attend to your own business and leave mine alone, it would be more to your honor and your credit as men—the disgrace is yours, not on my family, for nobody is in sympathy with your style of making war it would be different if you were fighting in the open men who can defend themselves, but here you are a body of men making war on one family who cannot defend themselves.

Yours fraternally,

J. S.

In November, 1905, his friends arranged to have him transferred to the Hospital for Insane at Toronto, as they were not satisfied with his treatment here and thought possibly more could be done for him in that institution. In Toronto there was no improvement in his condition. His delusions of persecution and grandeur

continued and he became very much emaciated and careless about his personal appearance. His friends were much dissatisfied with his hospital experience and were anxious to give him a trial at home. He was permitted to go home in July, 1906. The day he left Toronto Asylum he threatened to shoot the Superintendent and used most frightful oaths, and appeared to be a very dangerous man.

When first admitted to Brockville he was well-dressed and very careful about his personal appearance. He gradually became neglectful, and in June, 1906, while in Toronto, it was impossible to keep him tidy. It was stated that at that time it was pitiful to see him, that he tore his shirts and would not keep his clothes buttoned or wear braces, and he looked a complete wreck.

He was kept at home for some time, but it was with great difficulty, and his people had to keep some one constantly with him to look after him. His delusions of persecution became so great that he had to be returned to this hospital. He gave his wife a good deal of trouble while at home, as he had not been there very long before he became jealous and suspicious of her and at times threatened to do her injury.

During his confinement in the hospitals he frequently would take crying spells. At times he evinced a great desire to see his wife and children, to whom he was very much attached. His emotional tone was always normal, and one day he had a great fit of weeping on seeing a little girl in the ward that he thought resembled his own child. While he was at home he became not only jealous of his wife, accusing her constantly of infidelity, but he also at times blamed his children for conspiring against him and frequently would not have anything to do with them. His friends managed to look after him with a great deal of trouble until October, 1908, when he was again admitted to this institution.

When brought back here the medical staff noticed a great change in his condition compared with what it was

at the time of his first admission. At that time he was neat and well dressed, and now he was very slovenly in dress and careless about his appearance. He was much emaciated and jerky in his movements, and said his brain was breaking in two and moving out from his eyes. A careful physical examination at this time did not reveal anything wrong. He was fairly well oriented in all spheres but the temporal. He did not have a very good idea of time. His memory was found to be quite defective on many lines—he could not tell the year he was confined in the hospital here, nor could he tell the year that he was in Toronto. His facial expression was rather indifferent, and at times he would be quite haughty in his manner, but usually somewhat dejected.

In his writings he said that his enemies had said, "Crucify him," "Crucify him." From these expressions, and others that he used, he, no doubt, had hallucinations. He had the delusion of being possessed of greater strength than an ordinary man, and said that he could accomplish anything if he desired to do so. He also claimed that his intellect was very superior, but that his enemies had deprived him of making use of it as he should have done. He says that these antagonists conspired together to ruin him and his family. He would not admit here that he was jealous of his wife, nor would he now accuse her of any wrong-doing.

It was difficult to retain his attention, as he would become moody and did not desire to enter into a conversation. He said he was always a reader of high-class literature, but when asked who were his favorite authors, he said that he was more of a student than a novel reader, and when asked what authors he studied, he replied that he studied from nature and magazines. He was quite a magazine reader, and during his life here would not read any book continuously.

There appeared to be steady deterioration in his emotional tone. He did not seem to feel the same desire to see his wife and family as he did when first here. He

did not talk so much about his enemies, but when spoken to on that subject he said that the doctors who sent him here could answer the question. His judgment had also deteriorated, and he was more irritable with the attendants and patients than at the time of his former admission. He would become very abusive if crossed in any way, or if his requests could not be complied with.

On the 1st of February, 1910, there was no marked improvement in his condition. He got so that he never talked unless spoken to, but if spoken to his conversation was fairly rational. His letters, however, became very disjointed and rambling. In walking down the hall and vestibule he would frequently kiss the woodwork. At times he would talk to himself, and if one listened to him it was difficult to understand what he was saying. He would be very guarded in his answers when spoken to. He could not be induced to do any kind of work, as he thought it was quite beneath his dignity. Several times he claimed the picture of King Edward was his photograph.

During the latter part of February, 1910, he began to take some interest in the plants in the ward and assisted the Supervisor in looking after them. In a short time he was taking almost the entire care of them; he would pull out the dead leaves, see that they were watered, and grew very much interested. He also began to do a little work in the dining-room. At this time he began to go over to the skating rink, and took some interest in curling. When the spring opened he was asked if he would not work with the gardener, and he seemed to be glad to accept the opportunity. From this time he made a steady recovery, and he not only worked well during the greater part of the summer, but he began to talk quite rationally about the subjects brought to his notice. In the fall of the year he was able to look after any work given to him quite intelligently, and would talk about the growing crops and work done, and evinced a great interest in anything that was taking place. During

the summer he took quite an interest in the bowling, and bowled a good deal, becoming quite an expert in that line. He was quite pleased when he made a good shot. He did not shun the medical staff as he had done formerly. He would open conversation with any one of them on meeting them, and appeared to be pleased to discuss any question that was brought up.

He wrote a letter to the Superintendent, which exhibits very well his mental state at that time. He had at one time in his life been a commercial traveller, and this period of life, no doubt, came back to his mind. This letter shows that although he was not mentally well he was much improved. The following is a copy of the letter:

October 3, 10.

The Medical Superintendent:

My dear Dr.

I want you to be a little generous with me and give me my discharge from the Hospital yourself, so that I can go on the road again, as you may well believe, it has been a very heavy loss to me and also to my wife and children my being laid off from the road. Now Dr. give me the road, where true pleasures are found, an order book full, and a purse well lined, true friends for companions a good Inn our abode, then hurrah, hurrah, for the road the road.

The Red, White and Blue is calling to you in the spirit of a travelling man to a travelling man be true, 'tis "Red" over head in the Blue that is true, the White in all its Purity may it always be with you.

Yours faithfully,  
J. S.

Monday, Oct. 3, 10.  
Eastern Hospital.

From this time on he improved rapidly. When the winter set in he took a renewed interest in curling and was engaged in this game nearly every afternoon during the balance of his sojourn here. In the forenoon he still continued his work with the gardener, as he felt it was a great benefit to him to be so engaged. During the winter he began to talk about his case and about how much better he was, and frequently asked to be discharged. In the beginning of January he was apparently quite recovered, would write sensible letters and talk sensibly. During this time he wrote very nice letters to his family, and they made arrangements for him to go home, which he did on January 27th, 1911.

Immediately on his return home the business firm with whom he was formerly employed gave him his old position at a large salary. He was able to retain this position and has worked satisfactorily with the firm. We had a recent letter from the firm with whom he had been employed, stating that he had rendered them good service, but he had left them only to better his financial position.

Since leaving here he has paid several visits to the Hospital, bringing friends with him to show them the wards and grounds. He discussed his own case quite freely and had a good comprehension of the condition he had been in. He was extremely grateful for everything that had been done for him here and spoke in the highest terms of his general treatment.

Both the persecutory and expansive delusions of this patient were held with great persistency, and he had them built into an established system. He never at any time, until he began to recover, exhibited any insight into his disease. What was apparently deterioration in memory was, no doubt, retrospective falsification. Many things that had occurred in his past life he worked into clear evidences of the persecutions that he was enduring from his enemies. The religious coloring was never very strong in his case, but that of royalty was a more prominent feature. What was often thought to be a defect in

his memory was undoubtedly a desire on his part to evade direct answers to the questions asked, as he was suspicious of everyone being in league with his foes.

The apparently complete recovery of this man has been a great surprise to all that had him under their care.

This case was early diagnosed as one of true paranoia, and none of the many medical men who examined him dissented from this opinion.

In a case such as this, it would be interesting if one could be behind the scenes and diagnose all the mental changes as the restoration to normal condition gradually took place.

For a long time it was evident to every one that there was a marked deterioration in personal appearance, conduct, language and interest in his surroundings—all unusual in Paranoia.

There must have been an element of hope ever present, but for a length of time buried in his inner consciousness. This revived and again manifested itself when he began to take an interest in his surroundings. Then his suspicions of conspiracy, his delusions of wealth, power and strength gradually faded from his mind. Hope became strong and by degrees he was again able to exercise full control over his mental faculties.

## DEPRESSION.

DR. W. T. WILSON,

Medical Superintendent, Hospital for Insane, Penetanguishene.

About two years ago a practitioner consulted me regarding a case that was giving him considerable worry, and as it is a type not uncommonly met with in practice, in which the question arises, "Can the patient be treated at home or should he be sent to an hospital for the insane?" I beg to submit a short account of the case and a few remarks on depression.

A. B., a young man, single, aged 34, of good physique, formerly active, having taken interest in football and lacrosse, never had any serious illness, family history good, father and mother both living and well, over 70 years of age; two brothers and three sisters all healthy; no history of any mental disease on either side of the family. As a boy he was clever at school, active in all manly sports, and exceptionally bright and cheerful. At college, he was always a leader, and in business and social life took a prominent part. There was nothing he put his mind to that he could not accomplish, and no obstacle seemed too great to overcome. Gradually a change came over him, noticeable only to himself and his nearest friends. He states, "I still felt that I wanted to work and accomplish things in which other people were concerned, but began to lose interest in my own affairs, and lacked confidence in my ability to carry on my business. I began to think that I was a failure, lost interest in sport, could not sleep, had fullness in head, constipation, appetite fairly good, inclined to eat ravenously at times, urine heavily loaded with a brick-colored deposit, did not care for and shunned society, and at times felt inclined to do away with myself." He would continue in this condition for some weeks, and then gradually return to his normal, when business and other affairs would be all

right, and he would feel fit for anything. These attacks did not come on with any degree of regularity; sometimes he would not have one in a year, but latterly they have become more frequent, and he fears that during an attack he will do injury to himself. This was all the history obtained, and the point that worried my brother practitioner was the possibility that his patient was insane, that he would do away with himself, and further, what was his duty toward the patient?

The patient had a dread of becoming insane, and during the attack had the fear that he would be sent to an hospital for the insane. Not considering that the symptoms warranted extreme measures to be taken, believing that the condition was merely an attack of depression, commonly called "the blues," I advised that a thorough examination of patient be made, and that if there was no organic disease, he be assured that his condition, while annoying, was not serious, and that means be taken to insure the proper working of the digestive and excretory organs, and that the patient be encouraged to take a long trip, leaving his business in charge of his capable manager. This plan was adopted, and the patient returned from a long sea voyage and sight seeing in the old land, feeling fit and able for anything. He became a golf enthusiast, married, and has never had a return of his old enemy, the blues.

Dr. Fisher, in his article on Depression, calls attention to the fact that there are numerous cases of excitement in the sane and acute maniacal attacks in the insane, and it is not to be doubted that there are analogous, though less likely noticeable, attacks of depression in both classes. These may be of brief duration, and are often concealed by those afflicted, or may persist over protracted periods, and though in nearly every psychosis, using for the occasion Kraepelins' classification, we see at times a period at least of depression. Not every depression is a symptom of an impending or present insanity. All of us have days when we do not feel as full of vitality as at other

times, nor do we have the same zest or enjoyment in life. We are not all victims of mental derangement because of these temporary depressions.

Fears are not insanity unless they are expressed in acts. The fear of becoming insane is a mild disordered mental state, but the dreaded attack rarely follows such a mental state, and as a rule we are justified in assuring such persons that the fear of insanity is by no means a sign of its approach.

It is often very difficult to discover what is the cause of the depression in any given case, and as a rule there are a multiplicity of conditions which tend toward the same end, but in most cases it is found following a severe illness or prolonged labor. Fatigue, worry, changes in climatic conditions, irregularities of diet, continuous and monotonous employment and impaired excretory functions, may all be attended by depressed conditions. Deranged bodily functions are often responsible for the depressed state. Uric acid is no doubt a factor to be dealt with, gastro-intestinal auto-intoxication, and all gastro-intestinal disturbances of whatever nature, tend to disturb the nervous mechanism, and often produce marked depression in a subject naturally bright. This was the condition in the case I have cited. There was no organic trouble, there had not been any serious illness, but there were gastro-intestinal disturbances and the excretory organs were not properly performing their duties. He had the fear of impending insanity and suicide, suffered from insomnia, and had lost all interest in sport and social functions. The treatment adopted, more especially that which calls for expenditure of money and change of scene, cannot always be carried out as extensively as it was in the above case, and it is not absolutely necessary that the change should be so complete. What is required is change of scene, separation for a time from the surroundings and occupation in which the depression developed and the creating of fresh interests which shall be carried in to the home and business on the return of

the patient. This can be accomplished by having him go to live on a farm, where he will get lots of exercise in the open air, or a change from inland to a watering place might be suggested. Anything that will create in the patient new desires and fresh interests will tend towards cure, and often a simple change from one town to another will be productive of marked improvement and often permanent recovery.

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## HEREDITY AS A CAUSE OF MENTAL DEFECTIVENESS.

By J. P. DOWNEY,

Superintendent Hospital for Feeble-Minded, Orillia, Ontario.  
(Paper read at the annual meeting of the Canadian Health Association.)

Few, I imagine, have any idea of the extent of Feeble-Mindedness, or the burdens, private and public, that its existence imposes. I regret to have to say that in our work at Orillia we have not yet been able to collate statistics that will afford an accurate estimate of the number of feeble-minded persons in the Province of Ontario. We do know that while we have a population of over eight hundred, and there are many feeble-minded, young and old, in the various charitable and corrective institutions of the Province, these all put together do not constitute one-half the number of our mental defectives.

In many of the bordering states of the Union, a systematic effort has been put forth to take a census of those who can properly be classed as mental defectives. Basing our calculations upon the results there obtained, we are justified in assuming that at the present time there are at least 6,000 feeble-minded people in the Province of Ontario. Probably one-third of these have been identified and are receiving attention at Orillia, in Houses of Refuge, Children's Aid Societies, Orphans' Homes, Hos-

pitals for the Insane, and kindred institutions. But a great army remains to bear the penalties imposed upon them, either in their own homes, or, most regretable of all, herded with the criminal class for offences for which they should not be held either morally or legally responsible. Criminologists who have given the question attention estimate that from 15 per cent. to twenty-five per cent. of our law breakers are sub-normal, and that their offences are directly due to their defectiveness. In reformatories for children the percentage runs over 25 per cent. Recently a census was taken of the population of the state reformatories and industrial schools of New Jersey. Of 13,188 cases reported, 14.5 per cent were declared mental defectives. One institution considered all of its inmates normal. The others placed the proportion of feeble-minded at from 1 per cent. to 41 per cent. The fact is that while the public recognizes the pitiable wretches who are outcasts on the streets or objects of contemptuous isolation in the homes because of their pronounced idiocy, it is only when a higher grade imbecile is committed for some offence or series of offences that public attention is directed to his case.

Not infrequently in the history of the institution at Orillia have we been called upon to care for a feeble-minded woman and two or three of her offspring, whereas if proper steps had been taken for her protection before the unfortunate woman reached the child-bearing age the Province would have been saved the burden of maintaining another generation of imbeciles.

This brings me to the particular subject of my paper. It may be interesting in the first place to give you the result of an inquiry into the evidence of heredity disclosed in the population at Orillia. I regret that the files there are not sufficiently complete to go behind the individual records of our children and ascertain to what extent feeble-mindedness has exposed itself in the family tree. They do these things better in some of the States to the south of us where they have field workers specially

engaged to collect information bearing upon this very important question.

Of those now living at Orillia we have 39 families contributing two each, and 17 families contributing from three to five each. This means that over 16 per cent of our population can be arranged in family groups. What the figures would be were we enabled to collect statistics of defective relatives outside our hospital, it is difficult to make an approximate estimate, but I am satisfied they would be alarming. Only the other day we had an application for the admission of a young man from one of our eastern towns. It transpired that he had a brother who is also feeble-minded and should be cared for by us, and when we examined more closely the family record we found that two boys of the same family have been in our institution for some years. If time would permit, I could offer more impressive statistics collected with great care by some of our sister institutions in the United States, which convincingly show that heredity is by far the most generous contributing factor to the feeble-minded class.

I have already made reference to the apathy of the public towards children of defective mentality. The physically rugged child who can do chores at home or work for the neighbors receives no attention. She is probably regarded as stupid or dull-witted, and she is allowed to run her course until she becomes responsible for another generation of imbeciles. The less dangerous cases—the low grades incapable of work and not likely to procreate—are pressed into institutions. It is time the public realized that for her own happiness and comfort as well as for the future well-being of society the feeble-minded girl should be placed in a training-school or a custodial institution early in life. There she can be made useful to herself and of some use to the community. If in the next five years we could only place reasonably safe guardianship over the mental defectives of this Province, we would have laid the foundation for the gradual

elimination of that unfortunate class. It would mean a large expenditure, 'tis true, but I fear the burden will be still greater if our present laxity of interest in these unfortunates is allowed to continue.

This public indifference towards the problem of the feeble-minded is strikingly evidenced in our attitude to the marriage ceremony. It is quite a joke in the community when the village softy enters into bonds of wedlock with probably an equally defective partner. If people could only see what we see and hear what we hear, they would regard such a union as one of the most pitiable tragedies that could be consummated. In recent years some restrictive measures bearing upon defectives have been incorporated in the marriage laws of most civilized countries. The republic to the south has led in legislation in this regard. Thirty-four States of the Union make insanity, lunacy, or want of understanding or will to consent a cause for the prohibition of marriage, and in some cases, if contracted, a reason for its dissolution. In eight States the imbecile or feeble-minded are specified. These States are: Connecticut, Indiana, Kansas, Michigan, Minnesota, New Jersey, Ohio and Washington. Absolute prohibition of the marriage of the idiotic is the law in fifteen States and the District of Columbia. Other States put a restriction on those incapable of consent: epileptics, alcoholics, etc. The Indiana law against the marriage of defectives reads as follows:

"No license to marry shall be issued where either party is an imbecile, epileptic, of unsound mind, nor to any person who is or has been within five years an inmate of any county asylum or home for indigent persons, unless it satisfactorily appears that the cause of such condition has been removed and that such male applicant is able to support a family and likely to so continue. Nor shall any license issue when either of the contracting parties is affected with a transmissible disease, or at the time of making application is under the influence of liquor or a narcotic drug."

Michigan limits its restrictions to those who have been confined in public institutions "unless there be filed in the office of the County Clerk a verified certificate from two resident physicians that such person has been completely cured of such insanity, epilepsy, imbecility or feeble-mindedness, and there is no probability of such person transmitting any of such disability to the issue of such marriage."

A practical attempt towards preventing the marriage of the mentally unfit is being made in London, England, in what is known as the Mental Deficiency Bill. It is estimated that fifty thousand persons will be included in the provisions of this measure. It may be interesting to note that the London County Council now maintains ninety schools for mentally defective children. The attendance at these schools averages seven thousand, and the education of the children costs the ratepayers of London \$500,000 per year. It is with a view of stopping the rapid increase of this class that the Mental Deficiency Bill has been proposed. One of the clauses of the bill reads as follows:

"If any person intermarries with, or attempts to intermarry with, any person whom he knows to be defective within the meaning of the Act, or if any person solemnizes or procures or connives at any marriage, knowing that one of the parties thereto is defective, he shall be guilty of a misdemeanor."

Prohibition of the marriage of the insane and mentally defective in Ontario appears in the Marriage Act, subsection 2 of clause 16, in the nature of a penalty. The section reads as follows:

"If any minister, clergyman or other person shall celebrate the ceremony of marriage between two persons knowing or believing either of them to be an idiot or insane, the person so offending shall incur a penalty of five hundred dollars."

I am of the opinion that this section in the Ontario Marriage Act could be materially strengthened. It

should make it a misdemeanor to marry any person who has been confined in a public institution as a lunatic or mental defective, unless, in the case of the insane, such person can produce a certificate from two qualified medical practitioners that he or she has been restored to a normal mental condition. While the word "idiot" is no doubt intended to cover all mental defectives, it is now only applied to the lowest grade. The new term, "moron," describing the high grades, and the word "imbecile," as defining the second or middle class, should also be incorporated in the Act.

But even supposing we enact and enforce laws prohibitive of the marriage of defectives, is that, you will ask, likely to prevent the propagation of this unfortunate and burdensome class? It is a sorrowful fact that a very large proportion of the children whose defectiveness is due to heredity are illegitimate, the coming into being of whom no marriage law could have prevented. To stop the recruiting of this army of feeble-minded and degenerate, procreation laws are being enacted in many countries. A few years ago Dr. Godfrey, member for West York in the Ontario Legislature, introduced a measure dealing with this question. The Doctor's bill applied solely to those confined in the asylums and reformatories of the Province. I was of the opinion then, and my experience at Orillia has strengthened me in the view, that, as far as the feeble-minded are concerned, a measure of that scope would have little practical efficacy. I need not stop to emphasize the point, but I think it is the generally accepted theory now that it is impossible to restore a moron, an imbecile or an idiot to a normal state. By training and direction these unfortunates can be improved, but they cannot be cured. That being the case, you will agree with me when I say that the only safe place for the mental defective is in a training-school or custodial institution, and that while they are there and under proper discipline, the danger from any increase in population from within is reduced.

to the minimum. What we have to meet is the burden of future generations of defectives produced by those who have never seen the institutions to which the measure I have referred to applies. Admittedly, the advocates of sterilization laws have gained much ground during the past few years, and the question is now being openly discussed where previously it would have been mentioned, if at all, in a whisper. The argument of those who favor such enactments is that the imbecile and criminal classes should be sterilized in the interest of society and for racial betterment. Those who strongly favor this procedure point out that the degenerate class are prone to the grossest sexual offences. They multiply instances from criminal records and point to the evil effects of bad heredity. They point out that punishment has no material retarding influence on these people, and that the operation renders them more tractable and improves rather than impairs their general health. Indeed, it is claimed some defectives have recognized an incubus in their sexual life and have voluntarily requested surgical relief.

On the other hand those who are not so enthusiastic over surgical prevention draw attention to the fact that the class of offence aimed at is not the only one that these people are addicted to, and that consequently after the operation they would be a danger still. Then they repeat what I have already emphasized, that, segregated in public institutions, and under constant supervision, there is no real necessity for surgical interference. Instances are not lacking where persons of both sexes having been sterilized and allowed to mingle with the public have become an attractive mark on that very account, and while they could not reproduce their kind, they have added to the pollution and spread of disease in the community.

The remarkable fertility of the mentally defective and their predisposition to sexual passions are generally recognized. The only thing, apparently, that some of

them are capable of doing is to reproduce their kind. The injunction to "increase and multiply" appears to appeal to them with special force. With the well-to-do and well developed practising race suicide, and the paupers, degenerates and defectives revelling in the doubtful pleasures of large families, there is some ground for what is known as the eugenics movement. That movement may in the eyes of many be regarded as a fad. In its defence this much, at any rate, can be said: it is doing good work in educating the people to look at the subject of heredity from a national point of view. Commenting on the recent International Eugenics Conference in London, a leading writer says that scientific breeding would destroy two of the choicest qualities of man, love and initiative. To that statement we may give ready concurrence. Also let us admit that it is useless to talk of breeding men, like farm stock, to a type. But surely we are on safe ground when we say that, however human impulses and social customs may be permitted to influence the union in wedlock of two supposedly normal people, all the forces of society should be directed against the procreation of those doomed to be diseased or defective. At the Annual Conference of Charities and Corrections two years ago, the suggestion was made that the parties to a marriage contract should be compelled to undergo a medical examination. I notice that this idea is being taken up in New Zealand with prospects that it may be incorporated in the marriage regulations of that country. It is proposed that the examination and its result should be absolutely confidential, not even disclosable by the doctor to the other contracting party. While it is true that two people having fallen in love and deciding to marry are not likely to be dissuaded from their course by a doctor's opinion, it is equally certain that the fact of a medical certificate being necessary would cause people to give more serious thought to marriage from the eugenic standpoint and arouse public sentiment to an appreciation of the pity and the shame of unions the

issue of which are destined to be productive of individual misery and public danger.

It is unnecessary to pursue the subject farther. I have tried to lay before you some of the information that has come to my knowledge, and which is, no doubt, familiar to most of you. My brief experience in dealing with the feeble-minded has not convinced me that drastic measures directed towards the elimination of that unfortunate class would be desirable or efficacious. The public discussion of the most extreme proposals must, however, do good. The people do not appreciate the misery and suffering which are the inevitable lot of the vast majority of mental defectives; nor do they realize the weight of the public burden that their existence imposes. While provision for their care and security remains almost stationary, their numbers are rapidly increasing. Anything calculated to arouse a deeper interest in these, the most unfortunate of our fellow-beings, and impel good citizens to put forth renewed efforts for their protection is surely worth while, and that is my only excuse for having occupied so much of the valuable time of this Conference.

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### FORCED FEEDING.

F. S. VROOMAN, M.B.,

Hospital for Insane, Toronto.

Feeding by tube frequently forms part of the treatment of persons suffering from mental diseases. For many and diverse reasons the alienated refuse food or take only small quantities which are unequal to the task of keeping up their physical health. At the time of writing, seven patients in our acute wards are being fed by means of the oesophageal or the nasal tube. These cases illustrate very well some of the reasons which ac-

count for the refusal of food by the insane. One of these men will not eat because he has ideas of persecution, and is quite certain that his food contains poison. Another is so excited and confused and so occupied with his different delusions and fancies that he pays no attention to the pangs of hunger. Another is an old man who simply refuses to eat for no apparent reason. One female patient is refusing food on account of the delusion that she is filled up to the neck and therefore cannot swallow more. Still another will not eat because she is very depressed and wishes to starve herself to death. The two remaining patients who are being tube fed are suffering from dementia *præcox* of the catatonic type, and their refusal to eat is only a part of a general picture of negativism.

Often by the tact of the nurse the difficulty is overcome, but it is not our purpose to discuss nursing methods, and we will assume the necessity of artificial feeding. This paper will consider the subject as definitely as possible under the following headings:

1st.—Indications for and when to begin artificial feeding.

2nd.—Methods of feeding and preparations.

3rd.—How often to feed.

4th.—The results which may be looked for.

The usual mistaken tendency is to postpone artificial feeding too long in the hope that the patient will eat of his own volition. Sometimes this works out nicely, but more frequently the longer one waits the more remote the chances of voluntary eating become. In many cases (particularly those of the exhaustive type), to procrastinate is to unjustifiably jeopardize the patient's chances of recovery. Each case must have a rule to itself depending upon the state of nutrition and general condition of patient. If admitted in a state of excitement and exhaustion with a history of insufficient nourishment, and refusal of food, it is our custom to immediately administer a large quantity (one and one-half pints) of hot

milk by the tube, often accompanied by a liberal dose of spirits frumenti. Marked benefit is frequently obtained in immediate restful sleep. Kraft-Ebring has said that if the general condition of the patient is good and the mouth keeps clean, there is no harm in waiting as long as a week before using artificial feeding. It is the rule in our wards, however, that tube-feeding begins after a patient has missed four consecutive meals; we also feed those who take an insufficient amount of nourishment, and whose chart shows progressive failure in weight. I would urge the early resort to tube-feeding wherever indicated, as each delay will make it more difficult, and sometimes even impossible, to restore the balance of nutrition. It is to be remembered that, properly carried out, tube-feeding can at the worst do not harm, and I fail to see any good reason why we should await the appearance of sordes, the foul breath and the marked loss of weight, and the other untoward symptoms accompanying the refusal of food.

As to method, I personally prefer to use a medium-sized esophageal tube, although many physicians of long experience strongly advocate the routine use of the nasal tube. I have but seldom found much difficulty in employing the esophageal tube. It seems to me safer than the nasal, and it is certainly more agreeable to the patient, and permits of more rapid feeding. At the same time if any considerable resistance is encountered, the nasal tube obviates any gagging or struggling, and is always indicated. A small sized stomach-tube with the funnel may be used for the nasal tube-feeding. It can as a rule be passed without difficulty in one or other of the nares and without much discomfort to the patient.

Although fatal accidents have several times been reported, yet tube-feeding carefully performed is an essentially safe procedure. As remarked by Blair in a recent article in the *Journal of Medical Science*, experience gives one a *tactus eruditus* which enables him to know when the tube is in the correct channel. After introduc-

tion, if the ear be placed to the funnel, the stomach gurgle is always heard, or if the tube be in the trachea (which is hardly possible if 16" or 18" of esophageal tube has been introduced), the to and fro breath sounds are heard. Moreover, in the case of almost every conscious patient, with the exception, perhaps, of paretics, coughing and choking will serve as a warning that the tube has entered the respiratory passages. If a small quantity of fluid be poured in before the regular feeding, it serves as an additional safeguard. Other precautions, such as auscultation over the stomach while air is blown in the funnel of the stomach tube, have been recommended, but are scarcely necessary as routine practice. In using the nasal tube, it behooves one to be even more careful than in the use of the esophageal, for quite frequently, if the tube be small and short, it curves forward into the trachea. The same precautions as mentioned above enable one to determine whether or not the nasal tube is in the esophageal canal. During the feeding the patient should lie on his back in a semi-recumbent or recumbent position with the head on a pillow. I need scarcely point out that in most instances it is absolutely necessary to have plenty of assistance.

When considering what to feed we must bear in mind that the digestive and assimilative functions are almost invariably deranged. These patients have foul breaths, coated tongues, and in the exhaustive type show dryness of the mouth with sordes, and unless the food administered is suitable in character for digestion and absorption, it may serve only as an intra-intestinal culture medium for putrefactive organisms, and still further poison the already toxic patient. Before administering the food, it is often advantageous to give the stomach a preliminary washing with a solution of soda bicarbonate and luke warm water, or normal saline solution. This gets rid of sticky mucus which clings to the stomach walls, and the digestive juices which have become foul.

As a result of experience and observation, we use for

feeding a mixture of peptonized milk and raw egg with a little salt. In some cases we do not peptonize the milk, but wherever there are any considerable digestive disturbances we have found peptonization to be of great aid. This mixture is administered at a temperature pleasantly warm, but not hot. If troublesome regurgitation is exhibited, it is well to feed in small quantities and more frequently. Retention of the food is favored by slow administration. As a routine, a pint of milk and two or three eggs administered twice daily is sufficient to keep a patient well nourished. If the feeding is carried on for a prolonged period, a glass of water should be administered with each feeding, and also an occasional dose of some laxative such as cascara. Although two feedings daily are enough for routine use, yet there are from time to time some special cases which require food as often as three or four times each day; generally over only a short period of time, however.

The results from tube-feeding are very satisfactory indeed. The majority of cases, after having been fed for a few days, or possibly for a few weeks, begin to eat voluntarily, coincidently with increase in weight; and those who have fetid breaths or sordes or other signs of starvation soon become free from those manifestations. I regret that there has been no special record kept of the progress and later history of our artificially fed patients, but on looking back, most of the cases which come to my mind have recovered and gone out of the institution. Of course, most of them belonged to the acute class, among whom the majority of recoveries occur. One man in the London institution was fed exclusively by tube for a period of over twelve months. This man is, and has been, doing well on a farm in the North-West for a period of over three years.

It is interesting to note that life may be sustained for many years by tube-feeding. Blair has recently published a history of a case nourished exclusively in this way for a period of over nine years.

In conclusion, I may say that in my opinion tube-feeding is one of the most important remedial and life-saving measures known in the treatment of those mentally diseased, and that the more one uses the stomach tube, the more is he impressed with its value as a means of applying treatment in both psychiatric and general practice.

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## SYMPTOMS AND TREATMENT OF HYPER- THYROIDISM.

DR. C. C. TATHAM.

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As there seems to be more or less difference of opinion as to what constitutes pathological Hyperthyroidism as distinguished from or taken in conjunction with the disease called by the various names of Graves' disease, Basedow's, or the more common name of Exophthalmic Goitre, it will not be out of place to discuss this phase of the subject briefly. While one of the cardinal symptoms of Exophthalmic Goitre is Exophthalmos, this, while a very important symptom of Hyperthyroidism when it occurs, is not a constant symptom, and statistics go to show that it occurs only in about sixty to eighty per cent. of the cases, and one frequently sees a very severe case of Hyperthyroidism with little or no exophthalmos, and it is a matter of regret that the disease is sometimes unrecognized because of the lack of this symptom.

Again, the terms of Exophthalmic Goitre, Graves' disease, or Basedow's disease, are associated in the minds of many with a very distinct enlargement of the Thyroid Gland. It is not necessary for a patient to have a distinct external protrusion of the Thyroid in order to have the symptom of Hyperthyroidism markedly developed. While there is no definite rule as to the amount of the

enlargement, the middle and one lateral lobe (very often the right) are distinctly enlarged with the other lateral lobe but slightly; also there may be a marked difference in the size of the Thyroid Gland from week to week.

It is important to distinguish true Hyperthyroidism from relative or compensatory Hyperthyroidism, which is only temporary, and may be physiological, such as occurs in menstruation, pregnancy, puberty, and the acute infections, etc. Also those cases which belong entirely to the sympathetic nervous system in which the enlargement is compensatory and the symptoms are not constant. These cases are characterized by Goitre and extreme nervous irritability without noticeably constant Hyperthyroidism. Under exertion or excitement the Thyroid enlarges from evident congestion, and is doing normal work, but the Chromaffin group of glands are at fault, consequently the Thyroid appears to be acting morbidly. Dr. John Rogers<sup>1</sup> says that "in these cases the primary disturbances should be regarded as a fatigue of the Thyroid, which is really secondary to the nervous irritability, and is due to some error in nutrition in the nervous or Chromaffin system. These cases are often very puzzling, and must be distinguished from *Hypo-thyroidism*."

The over-active Thyroid has been recognized, and more or less investigated for the last 125 years by such men as Morgagni, Parry and Flagani; then Graves in 1835, Basedow in 1858; later by Hirsch and Moebius, and more recently by Kocher, Klose, Plummer, Garre, the Mayos, Rogers, and Beebe, etc. With the earlier investigators the symptomatology varied between the heart, the nervous system and intestinal toxins, and it was not until twenty-seven years ago that Moebius first presented his theories of Hyperthyroidism. Since this time investigators have made rapid progress. But, while rapid progress has been made, still there are various points to be cleared up in the pathology of the disease. Such, for instance, as the relation of the Thymus Gland to Hyper-

thyroidism. Garre<sup>2</sup> believes that there is a class of patients suffering from this disease which must be separated from the remainder, owing to the combination of a persistent thymus with the usual goitre, which are recognizable by the exceptional severity of their symptoms.

Coming now to the symptoms proper, we find that Tachycardia is probably the most constant of all, and the pulse rate may be anywhere from 80 to 100, up to 160 or over, depending upon the severity of the disease. The blood pressure is usually raised, and in some cases markedly so. A bruit is usually heard over one or the other of the poles of the gland, usually the lower. The enlargement may be slight, as in the soft vascular pulsating forms, or it may be extensive as in the Adenomatous form with Hyperplasia.

In outlining the gland it is always best to put the patient's neck on the stretch and have the patient swallow while palpating, as well as turning the head from side to side, as considerable of the gland may be hidden beneath the Sterno-mastoid, or the Clavicles. Ochsner<sup>3</sup> says that "a positive diagnosis can always be made if in the presence of Tachycardia there is even the slightest degree of Exophthalmos, or enlargement of the Thyroid Gland." Of the many other important symptoms there are present, muscular tremor (apparent when patient is asked to extend hand or arm), muscular weakness, always found in advanced cases, and sometimes quite early; nervous excitability, which may take various forms; in the early stages the patient often being very moody, sometimes joyous, but very often depressed. In the latter stages the patient's nervous condition is one very often bordering on insanity. The nervous system is especially prone to attack by this disease, and in some cases quite a marked mental deficiency develops.

Vertigo is occasionally present. Dyspnoea may be present and may be either paroxysmal in character from pressure on the trachea, or from oedema of the lungs

in the later stages. We may have intermittent vomiting, diarrhoea, etc., the abdominal symptoms in some cases predominating.

In the case of a patient aged 35, the abdomen remained markedly distended, was very tender on pressure, and the menses after being irregular for six months, ceased altogether for a period of six months. In this case the temperature ranged between 97 and 100½. The diagnosis had been previously made of walking typhoid, and later of appendicitis. The menses did not become regular, or the symptoms clear up until after partial Thyroidectomy. The patient complained of great thirst and dryness of the mouth, and had a heavily coated tongue. She had no Glycosuria. There was a markedly brownish discolouration of the body with deeper pigmentation about the nipples and orifices. The menstrual function is nearly always interfered with in advanced cases. Another patient had irregular menses with dysmenorrhoea, with fits of almost maniacal excitement at the menstrual period. The flow was scant. This altogether cleared up after operation.

Psychic excitation, physical and mental fatigue, tend to increase the gravity of the symptoms. In advanced cases we see great emaciation together with anaemia, and frequently oedema of the eyelids, and later of the feet.

The administration of Thyroid Extract, or iodine, has a very harmful effect on these patients.

The eye symptoms vary, and while important, there is no one symptom that is constant. The most important when it occurs, is of course, Exophthalmos. Various explanations are offered for this symptom, such as a weakness of the muscles supplying the eye—a result of the Thyrotoxicosis. Some suggest that a venous enlargement helps to push the eye-ball forward. We know, of course, that in marked cases there is an increase of retrobulbar fat.

Very frequently, even in relatively mild cases, we have (1) Graefe's sign (1864), in which, in directing the eye downward, the lower margin of the upper eyelid does not follow the line of vision normally, but lags behind or

follows in an irregular or spastic manner. (2) Stellwag's sign (1869), in which there is a retraction of the upper eyelid, and at the same time the lid remains much more stationary than it does under normal conditions, and there is also a marked decrease in the frequency of winking. (3) Moebius' sign (1895), in which there is an insufficiency of convergence. It can be elicited by directing the patient to look at the ceiling and then suddenly at her own nose, when it will be found that only one eye will be directed toward the nose, and the other may take any other direction, although it usually maintains its axis fairly parallel with the eye that is directed toward the nose. (4) Dalrymple's sign, a widening of the palpebral fissure, showing more sclera.

The blood picture is of great interest. Kocher, of Berne, states that leucopenia exists in this class of patients with a relative increase in the mononuclear cells, and further that the processes of assimilation are markedly diminished. In early cases and those that have improved in early treatment, there is usually no increase of lymphocytes. The polymorphonuclear leucocytes are diminished, while the total number of leucocytes is usually normal or slightly below.

In considering the treatment of these cases there are many factors to be taken into consideration, for while we know that a patient seldom dies from Hyperthyroidism, we also know that patients very frequently die from the effects produced on the vital organs, such as the heart, kidneys, liver, etc., by the continued action of the poison. This action is usually extended over a lengthy period, but as C. H. Mayo<sup>5</sup>, well says, "there are numerous instances where cases of Hyperthyroidism have run a rapid course to death, which were essentially due to Toxaemia." We must also be cognizant of the fact that there may be many remissions and exacerbations of the disease. MacCarty, from a study of this question, has advanced the "revision theory" that "there is a tendency in the gland of Hyperthyroidism to revert

toward the simple form of goitre at some period of the disease in practically all cases which are not progressive, and also that such reverersions may occur at any period or stage of the disease."

Most of the severe cases of Hyperthyroidism give a history in which recurring spells of exacerbation of symptoms are well marked. Further, we often find an enlargement of the liver and spleen in advanced cases. It is now the general consensus of opinion among men of large experience with this disease, that the treatment for true Hyperthyroidism is surgical. By this I do not mean to say that in cases far advanced, in which the musculature of the heart is damaged beyond repair, or the other essential organs irreparably damaged, that surgery will cure. We can remove the cause, but we cannot remove disastrous effects already produced. I would therefore advocate early recognition with partial Thyroidectomy. If the patient refuses operation, or is in a too far advanced stage, we may have recourse to Rogers' and Beebe's, or Moebius' serum, with absolute rest both physically and mentally, and the exhibition of proper, suitable, internal, dietetic, and hygienic treatment, with later, if possible, ligation of one or more poles of the glands.

In this connection I may mention that I have not seen any marked results from Forscheimer's quinine hydrobromide treatment in cases of true Hyperthyroidism.

Before proceeding to operation it is advisable, as far as may be possible, and for the best results, to have these patients brought to the ideal surgical state, the state designated by Dr. Geo. W. Crile<sup>7</sup>, of Cleveland, as "anoci-association." We must endeavor to banish all fear from the minds of our patients, and we may frequently accomplish this by giving our patient bright, cheerful surroundings, with a tactful nurse, and in some cases by daily use of the anæsthetic mask, suggesting to the patient that this is a part of the treatment, and by keeping knowledge of the operation from the patient,

finally anaesthetizing the patient in her bed preparatory to operation. It is most important for the best results, to recognize all the "factors of safety" in the treatment of this disease, and we should use small preliminary doses of morphine and scopolamine, better in some cases morphine and atropine. We may further protect the brain by, if necessary, using Crile's "anoci-preparation," *i.e.*, the local or intra-neural infiltration of novocain. Crile also claims that "nitrous oxide" is much safer than ether.

If in an advanced stage we find it necessary, or advisable, to ligate one or more poles of the glands, either as a preliminary step or as a final remedial measure, it may be done under local or general anaesthesia, and in doing this it is better to include in the ligature a small part of the gland. This operation should not be undertaken without due consideration, however, for while there is less shock produced than in a partial Thyroidectomy, it is in unsuitable cases a severe operation. Partial Thyroidectomy is the operation of choice in suitable cases, but here the question naturally arises, how much should we remove? If we remove all we can find we may expect the condition of Hypothyroidism to develop. If we remove only a part we may not relieve. In this event we can at a later stage remove more if necessary. What we aim at, is to remove all of that part showing hyperplasia, leaving behind sufficient of the normal gland to supply the bodily requirements.

In performing the operation of partial Thyroidectomy, I prefer the technique of Wathen<sup>9</sup>, of Louisville, in which the use of the scissors replaces the knife, and all the structures beginning with the skin, and later, the thyroid, are elevated, put on the stretch, and approached from the under surface. This lessens the haemorrhage, makes the work more rapid and safer, and allows of easier blunt dissections being made, and, most important of all, allows of less handling of the gland, with its consequent effect of expressing a large amount of the toxin

into the system at the operation. It may or may not be necessary to cut through, with subsequent suture, the ribbon muscles to secure an easier access to the glands. The further important points are: To prevent (a) shock; (b) haemorrhage; (c) injury to the recurrent laryngeal nerve; (d) interference with, or removal of the parathyroid glands; (e) collapse of the trachea; (f) infection, and (g) air embolism, and (h) to provide for drainage through a tube for 24 hours or longer through a separate opening below the line of incision. It is almost unnecessary to add that the work should be done under light anaesthesia, and as rapidly as possible commensurate with safety. In the after treatment patients should be warned to lead quiet lives for at least a year following the operation, for they usually feel so much better in about two weeks, that they may go to extremes unless warned. The pigmentations and discoloration of the skin is usually much more marked for a few days after operation, and in the course of a week or two clears up almost completely. For 24 or 48 hours following operation the pulse rate is usually markedly accelerated and patients should be carefully watched.

In conclusion let me refer very briefly to the ultimate results that may be looked for.

C. H. Mayo, in the Journal of the American Medical Association for July, 1912, reports 75 per cent. of cures in patients he has been able to trace after surgical treatment with an operative mortality of from 1 to 4 per cent., and reports within the last year 278 consecutive cases without a death.

Dr. Theodore Kocher<sup>7</sup>, reports a mortality of 3 per cent. in a series of 535 patients, and concludes "that the disease should be surgically treated, and operative intervention should be undertaken at the earliest possible moment."

Kocher, Sr., reports that there is not a single case in which the patient has not been much benefited. In 83 per cent. of his cases a cure is reported; 73 per cent. of

cases with primary disease were cured, and 92 per cent. of cases with disease combined with ordinary goitre were cured; 100 per cent. of cases of vascular goitre were cured.

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#### ON THE LUETIN CUTANEOUS REACTION.

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The Wasserman reaction has become a valued aid in the diagnosis of luetic disease, whether active, latent or parasyphilitic. It would appear to give promise of being of assistance in treatment, when sufficient experience is gained in its behavior under the influence of various remedial agents—mercury, iodides, salvarsan, neosalvarsan and their sundry combinations. Even when this information is received and standardized, it must be acknowledged that the length of time required for a Wassermann test modifies its utility, and the elaborate

technique necessary modifies its reliability outside of experienced hands.

In various diseases, but notably in tuberculosis, the cutaneous reactions to the inoculations of emulsion of dead organisms have been studied. Many explanations have been suggested for the specificity of these reactions. Von Pirquet (1) speaks of it as an allergic condition comparable to anaphylaxis. From the clinician's standpoint the explanation is not important, providing the phenomenon is specific.

In December, 1911, Noguchi (2) introduced us to a cutaneous test for diagnosis in syphilitic diseases which he hoped would be of greater assistance than the Wassermann test because of its simplicity. The substance injected he calls "luetin." It consists in a suspension of dead spirochetae, prepared by pulverizing, in a sterile mortar, a solid agar culture of the organisms, and adding an ascitic fluid culture until a liquid results. This is heated to 60° C. for one hour, after which 0.05 acid carbolic is added as a preservative. The sterility of the suspension is proved by its failure to produce infection when injected into the testicles of rabbits. In order to ascertain whether the reaction produced with the suspension may not be due to the carbolized culture media alone, a similar emulsion with uninoculated media is prepared and used as a control. The application of the test is simple; a finely graduated tuberculin needle is used and 0.07 C.C. of the luetin is injected intradermically into one arm, while the same amount of the control suspension is injected with another syringe into the other arm.

The reaction is easily identified. It commences as a papule on the second day. The papule sits on a reddened, indurated itchy base and proceeds to pustule formation about the fourth day. Healing occurs with scab formation in from ten days to three weeks. In my series the injection of the control suspension in the other arm was uniformly devoid of reaction.

Noguchi reports 72 cases of general paresis in which

the reaction was present in 45 and absent in 27. He found it present in 100 per cent. of hereditary cases. It was absent in primary and secondary cases and in 146 control.

Cohen (3), in a study of 60 cases, found it positive in 76 per cent. of tertiary and latent cases in which the Wassermann was positive, and in 10 cases regarded clinically as syphilitic, but in which it was presumed that anti-syphilitic treatment had rendered the Wassermann negative. He found the reaction present in 6 per cent. of his controls.

Robinson (4) found no reaction in the controls of 107 cases. She states that it is absent in primary and secondary cases unless they are being treated, and that it is present in all cases of tertiary, latent, and late hereditary cases.

Dr. Noguchi kindly sent me a quantity of the luetin last July, and we have had the opportunity of trying it in twenty cases of general paresis in which the Wassermann was positive in both blood-serum and spinal fluid, as well as in five cases diagnosed as latent syphilis because of the positive Wassermann in the blood-serum with an absence of clinical evidence of lues. In addition to these a series of control tests were made. Our results are tabulated below:

*Class (1) Case of general paresis with a positive Wassermann reaction in blood-serum, and cerebro-spinal fluid.*

No. of positive reactions .....	9
No. of negative reactions .....	11
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Total cases .....	20

*Class (2)* Cases in which a positive Wassermann and the clinical history pointed to latent syphilis, there being no active evidence of *lues*.

No. of positive cases .....	4
No. of negative cases .....	1
Total cases .....	5

*Class (3)* Controls mostly cases of dementia praecox of long standing. In 15 of the control cases the Wassermann test was made and found negative.

No. of positive cases .....	33
No. of negative cases .....	42
Total .....	75

As yet the literature contains only the three reports referred to, and it is perhaps too early to be critical. It is possible that luetin may be improved by increasing its strength, or varying its preparation. It would appear that as now prepared it is not specific. The percentage of positive reactions in non-syphilitics is so large as to render the test of no practical value.

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## PSYCHOSIS OR INFECTION PRIMARY?

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The following case is reported because of the uncertainty as to whether it was a mental case solely, a mental case with an infection superimposed or an infection pure and simple, with marked mental symptoms.

The patient, a woman of thirty-nine years of age, was admitted to this institution on the evening of August 27th, and was accompanied by her husband, son, and a nurse. The history obtained from the husband on September 1st was as follows: The patient was born in Scotland thirty-nine years ago. She was a Presbyterian in religion and received a high degree of education, especially in music and languages. She was extremely patriotic in her inclinations. She was happily married at the age of twenty-seven and continued to reside in Scotland until June, 1912, when she came to this country to meet her husband, who had been working in Canada for some six years previously.

As regards family history, it was learned that her father died at the age of seventy-two years of sarcoma, and that her mother died at forty-five of diphtheria. There was no relationship between the patient's parents. Two brothers and one sister were living; four brothers and sisters were dead, of causes unknown. During the patient's childhood her father was mentally deranged for some time, received treatment in some hospital and apparently recovered. A paternal uncle was considered peculiar, and his daughter was also odd. The patient's maternal uncle suffered for some time from eczema, and finally died of Bright's disease.

Regarding personal history, conditions attendant upon birth of patient were normal. During infantile life, she was healthy and well developed. She began school at

seven years of age, and was very attentive towards study, music and languages being her special forte. She was considered quite thoughtful as a child. In early childhood, she suffered from pertussis, scarlatina and tonsillitis, but otherwise was quite healthy. At the age of thirty-one she received a slight injury, being accidentally struck over the left eye. At times in after years she complained that she could feel this trivial injury. Several years ago she developed a perforation of the nasal septum, and four years ago she had a small growth cut out of the upper lip, which was in all probability cancerous in character. For many years she suffered from neurasthenia, and was also inclined to be somewhat hysterical. Some years ago she received an injury to her back which resulted in loss of power in the left leg for a year. The husband had not very definite information regarding this trouble.

History of the present illness:—Patient seemed fairly well until the evening of August 24th, 1912. On this date there was a very bad thunder storm, and the husband dates all mental symptoms from this event. The patient complained that her head was not feeling well, that she could not sleep, and began to talk about a conspiracy against her. She said her head felt as if there was a band compressing it just above the eyebrows. She thought she had done something wrong, and that the conspiracy was a punishment for having done this. She refused medicine, saying it was poison. She was worried a great deal about little things, and showed some indecision and self-accusation, loss of memory and defects in judgment. At times she became disoriented as to place, thinking she was in the Old Country once more. She said to her husband once, "I think I am the devil." She then began to imagine her husband was saying unkind things about her, and had hallucinations of hearing. At times she refused to speak, and then would lie in bed and repeat words over and over again, such as "Dog, dog, dog,—God, God." Her muscles would twitch violently

at such times. She seemed to have some insight into her condition, as she remarked to her husband that she was afraid she was going silly. In view of her delusions of persecution and conspiracy it was thought she might become dangerous, and it was therefore decided to transfer her to this hospital, where she remained until her death two weeks later.

Upon admission there was nothing very noticeable about her general appearance, except that she was prematurely grey and of a very high color. It was found impossible to carry on any conversation with her, as she refused to answer any questions. She, however, went to the ward willingly and submitted to the usual formalities of admission, such as bathing and being put to bed. She appeared to be somewhat confused, especially as to time and place. Her temperature on admission was 99° F. and her pulse was 80. She was quite restless during the first night. For about a week no definite physical symptoms were noticed, beyond the fact that her temperature remained at about 99, which was thought to be due to the persistent constipation from which she suffered. In order to remedy this she was given calomel followed by a saline, and glycerine enemata were also ordered. Although this treatment was effectual in overcoming the constipation, her temperature still remained around 99. The first day or so she would take her food in small quantities, but thereafter she refused to take any, and as a result had to be tube fed regularly up to the time of her death. It was noticed while tube feeding her that pussy matter came up and oozed out of her mouth immediately after the tube was withdrawn. A laryngoscopic examination was made by the attending specialist, but nothing abnormal was discovered beyond a certain degree of inflammation of the throat, for which an antiseptic spray was ordered. She became very noisy and it was found very difficult to keep her in bed. She was, therefore, placed in the continuous warm baths, but was very restless, lashing her arms to and fro and muttering to herself.

self. Her talk was mainly of relatives in the Old Country and of her husband and son. She seemed to think that they were quite close to her and she was holding a rather disconnected conversation with them. Her tongue became heavily coated, brown and dry; her lips became cracked and her breath was very foul. Twitching of the hands and arms became a prominent symptom, and it became evident that she was rapidly passing into the typhoid state. An ice cap was applied to her head and diffusible stimulants administered every hour. Over her limbs and chest there appeared brownish to yellowish spots of various sizes and of irregular shape, which at first sight appeared to be due to bruising, but which on closer examination were considered to be manifestations of purpura rheumatica.

On September 6th her temperature was 101 in the axilla in the morning. Her respirations became quite hurried, the twitching of the arms increased and muscular rigidity became very marked. An examination of her chest showed nothing abnormal apparently about her lungs or heart, beyond increase in rate of respiration and heart beat. Her abdomen, however, seemed tender all over, pressure upon it at any place eliciting a pained expression of countenance. Control of the sphincters was completely lost by the patient.

On September 7th, her morning temperature was 105 in the axilla and her afternoon temperature was 105 3-5. On September 8th, her morning temperature was 104 and afternoon temperature was 105 2-5. Her respirations became extremely rapid and her pulse rapid, soft and almost uncountable, because of the extreme degree of subsultus tendinum. Carphologia was also noticeable on this day.

A drop of blood was taken from her ear and sent to the laboratory at Kingston for a report as to typhoid. It was noticed when taking this blood that it was quite dark in color, and there was a persistent oozing for some

fifteen minutes, although a very small prick had been made.

On the evening of the 8th she was placed in a cold bath for some twenty minutes, when her temperature fell to 104. Her respirations were fifty to the minute and seemed to be difficult. It was also noticed that her pupils were very much enlarged, especially the left, and that they did not react to light. At 8 p.m. enteroclysis by the drop method was instituted. She was in a semi-unconscious condition. She grew rapidly weaker during the night, and died at 6.30 a.m. on September 9th.

After some difficulty, permission was obtained from the husband to do a partial post mortem, and the abdomen and cranial cavities were examined. The peritoneum appeared quite normal, and there did not seem to be any inflammation whatever around or in the ileum. The spleen was not enlarged, the liver and gall bladder were normal, and the uterus showed an intra-mural fibromyoma. The pancreas appeared slightly congested, but hardly sufficiently to constitute a haemorrhagic condition. The stomach and intestines appeared to be normal, and there were no marked adhesions. The thorax was not examined, as it was advisable in deference to the husband's wishes not to cause any more mutilation than possible. The cranial cavity was next examined, and there was a rather extensive amount of fluid contained therein. The meningeal vessels were found to be markedly injected and a considerable degree of inflammation of the meninges was found to be present. This was more prominent over the occipital lobes than over the parietal or frontal lobes. The brain was of normal size and weight, the circle of Willis was found to be healthy, and the convolutions and sulci normal in appearance.

On the morning of September 9th the report was received from the laboratory that the blood gave a positive Widal reaction. In view of this fact, it would seem that a diagnosis of typhoid-meningitis should be made and that the meningitis undoubtedly present should be con-

sidered to be due to the typhoid bacillus. The question then arose as to whether the mental symptoms which the patient had shown for about two weeks previously had been due to this physical condition or to a pre-existing psychosis.

The mental symptoms presented by this patient on admission seemed rather paranoidal in character, but until the temperature and other physical symptoms appeared, the diagnosis was held in abeyance. When the physical condition became so rapidly worse, however, it was considered that there must be some infection at some point, and the case was classified as one of infection-psychosis. The laboratory and post mortem findings would further seem to point to the more definite diagnosis of typhoid-meningitis, with what is called by Kraepelin "Initial-delirium." This is described by De Fursac as a delirium "which supervenes in the course of an infection without the fever being particularly intense, or even before the fever appears." It is especially common in typhoid, variola and typhus fevers, and very often takes the form of acute confusional insanity. There is a marked clouding of consciousness, disorientation, loss of memory, psycho-sensory disturbances, psychomotor excitement, and frequently delusions of a persecutory character. It appears frequently quite early in the infectious disease, and is considered to be due either to the toxin of the disease or to an auto-toxin manufactured by the body as a result of the disease, acting directly on the nervous system. It is, of course, probable that in individuals affected in this way the nervous system is defective, and it is merely a case of the germ attacking at the point of least resistance.

According to Osler, meningitis is rare as a complication of typhoid fever, and the mental symptoms which so frequently occur are independent of cerebral inflammation. In Frederick Taylor's *Practice of Medicine* it is mentioned that meningitis from the typhoid bacillus has been reported as occurring without intestinal lesions. The

difficulty of diagnosing such conditions will be sufficiently obvious. As White puts it, "In those cases in which the delirium is a very early symptom occurring before the fever, the diagnosis is very difficult and may be quite impossible until the infectious disease is frankly established."

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### THE RESULTS OF TREATMENT OF SYPHILIS AS SHOWN BY THE WASSERMANN REACTION.

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The two greatest difficulties in dealing with cases of syphilis have been, first, to tell whether a patient has syphilis, and second, to tell when a case has been cured by treatment. Continental syphilographers have almost unanimously insisted that three to four years' treatment with mercury was necessary, while the British have held that two years' thorough treatment is usually sufficient.

In making a diagnosis secondary signs are comparatively obvious to one skilled in syphilology; the difficulty usually lies in the diagnosis of suspected congenital, tertiary or latent cases.

In solving these two difficulties the Wassermann reaction has proved to be a great aid, not that all cases giving a negative reaction can be considered to be free from infection, but a positive reaction practically proves infection.

In the past thirty months through performing the reaction on about eight hundred sera, we have been able to follow a large number of treated and suspected cases. It is our object in this paper to summarize the results of treatment, and to analyse the cases giving positive reactions without any history of syphilis. In dealing with treatment we shall say very little about the new remedy, Salvarsan, as it is of too recent introduction for us to be able to pass judgment upon its efficacy as a complete cure.

Of 61 cases in which we were able to obtain sufficient history of previous treatment and which gave a positive reaction, 7 had had 3 years treatment with mercury, 17 had had between 2 and 3 years, 20 had between 1 and 2 years, and 17 had had less than a year of treatment. In 23 cases which had a history of infection but reacted negatively to the test, 4 had had 3 years or more, 10 had had between 2 and 3 years, 7 between 1 and 2 years, and 1 less than a year of treatment. Put in another way, of 11 cases having had 3 years or more of treatment, 7, (63.5 per cent.), were positive, and 4, (36.5 per cent.), negative; of 27 cases on 2 to 3 years treatment, 17 (63 per cent.) were positive, and 10 (37 per cent.) were negative; of those on 1 to 2 years of mercury 20 (24.1 per cent.) were positive, and 7 (25.9 per cent.) negative, and of those on less than a year's treatment 17 (94.4 per cent.) were positive, and 1 (5.6 per cent.) negative. In considering treatment we have not taken potassium iodide into account, for, except in one case, we have never found that its administration even in larger doses has

any tendency to change a positive reaction. It probably has little or no effect in killing the *treponema pallidum*, but is beneficial through its action in promoting the absorption of the new cells in gummata.

The high percentage of positive reactions in cases on three years or longer treatment may be partly accounted for by the fact that some of these cases had symptoms, while most of the cured cases who had been on three years' treatment, having no symptoms, did not come to have a test made. The method of administration of mercury varied. One patient was given it intramuscularly for five years, and in pill form for three years. In spite of this severe treatment his reaction was positive.

On the other hand one must remember that probably 15 to 30 per cent. of the negative reactions were obtained in persons still infected, but in whom the production of antibodies was too small to cause a fixation of complement, or in whom an excessive amount of natural haemolysin for sheep blood cells makes the obtaining of a positive reaction difficult. A negative reaction obtained within six months of treatment of mercury or salvarsan is of little value, for we have found that the same cases tested later sometimes give a positive reaction.

In the cases treated by salvarsan the majority showed a negative reaction after one administration; about one-third of the number were positive either one month or six months after treatment. When salvarsan was given during the primary stage the Wassermann remained negative as long as followed in all cases. Four cases reacted positively after three administrations. One of these developed tabes within a few months. In several cases where the reaction was positive after long-continued mercurial treatment it became negative after the administration of salvarsan.

Two more points which have proved interesting to us were the large number of patients with syphilis who denied infection, or who, having had treatment years before and having no symptoms at the time of testing,

yet gave a positive reaction. Of 193 patients who reacted positively and who were questioned regarding infection 43 (21.2 per cent.) denied infection and gave no history of it. The nature of these cases was as follows: 14 congenital, 8 secondary, 13 tertiary, 2 latent and 6 paresis or tabes. In the congenital cases the mothers were questioned. In cases remaining latent for a number of years disease of the aorta (dilatation or aneurysm) and aortic valve were the commonest reminders of the old infection. So commonly is this fact overlooked that we feel too little attention has been drawn to it in this country. How many practitioners realize that over 90 per cent. of leaking aortic valves occurring after 35 years of age are syphilitic in origin?

In 19 cases of congenital syphilis the mothers gave a history of syphilitic symptoms in 5 cases, yet the Wassermann reaction was positive in the mother in 16 out of 19 tested. The babies were not tested when the mother's blood was positive, but nearly all cases of congenital syphilis gave a positive reaction in the mother or in the child.

The chronicity of syphilis is well shown by 111 positive cases, in which we were able to get the date of infection. Forty-six were of less than 2 years' standing, 23 between 2 and 5 years' standing, 10 between 5 and 10 years', and 32 over 10 years'. The large number of over 10 years' duration is partly accounted for by 14 paretics and tabetics which are included.

Conclusions: (1) The Wasserman Reaction is the most reliable method for the diagnosis of a cure of syphilis, but it is of little value within six months of treatment, and should be repeated six months or a year later. Where symptoms persist and the Wassermann Reaction is negative, as occasionally happens, the reaction should be disregarded.

(2) A negative history of infection is of no value in making a diagnosis.

(3) In cases of congenital syphilis the mother is probably always infected and should be given treatment.

(4) A history of freedom from symptoms for over ten years is not sufficient evidence that a patient is cured.

(5) A person with a history of syphilis is never a good insurance "risk," especially for a "straight life" policy.

(6) When mercurial treatment is adopted it should be persisted in for at least three years after symptoms have disappeared.

(7) Potassium iodide does not cure syphilis, and is never sufficient treatment for a lesion, whether secondary or tertiary.

TABLE SHOWING LENGTH OF TREATMENT IN PATIENTS  
REACTING POSITIVELY.

No. of cases	3 yrs. treatment	2-3 yrs.	1-2 yrs.	Less than a year
63	7	17	20	17

TABLE SHOWING LENGTH OF TREATMENT OF THOSE WHO,  
HAVING BEEN INFECTED, REACTED NEGATIVELY.

No. of cases	3 yrs. treatment	2-3 yrs.	1-2 yrs.	Less than a year
23	4	10	7	1

TABLE SHOWING RESULTS OF TREATMENT.

No. of years treatment.	No. of cases.	Positive.		Negative.	
		No.	%	No.	%
3 years.....	11	7	63	4	36.5
2-3 " .....	27	17	63	10	37.0
1-2 " .....	27	20	74.1	7	25.9
Less than a yr.	18	17	94.4	1	5.6

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